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## NEW FRESH-WATER SPONGES FROM NOVA SCOTIA AND NEWFOUNDLAND.

BY A. H. MACKAY.

In the article on Organic Siliceous Remains found in the Lake Deposits of Nova Scotia, published in the last number of the RECORD OF SCIENCE, Nos. 3 and 8 of the list of sponges were referred to as new. I here quote the original descriptions of the species, to which I append some observations. In the *Annals and Magazine of Natural History* of London, January, 1885, Mr. H. J. Carter, F.R.S., of England, describes a species from a lake in Pietou County, Nova Scotia, as follows:—

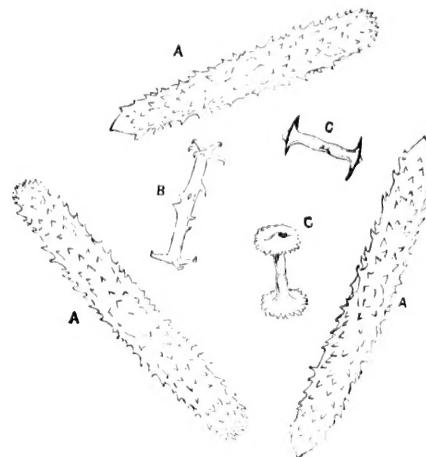
“*Spongilla mackayi*, n. sp.—Sessile, spreading, charged with little subglobular bodies like large statoblasts, about 1-12th inch. Skeletal spicule acerate, slightly curved and sharp-pointed, more or less thickly spined, averaging 50 by  $2\frac{1}{2}$ -6000ths inch in its greatest diameters; [accompanied abundantly by minute birotulate flesh-spicules precisely like that of *Meyenia everetti*—that is 3 to 4-6000ths inch long, with very thin smooth shaft about four times longer than the diameter of the rotule, which is 1-6000ths inch, toothed, with the teeth recurved.] Statoblasts globular,

consisting of a thick chitinous coat filled with the usual germinal matter, from which is very slightly prolonged an everted trumpet-shaped aperture; bearing slight traces externally of microcell-structure and the polygonal tissue; making one of twenty such which are arranged so as to form a subglobular body of the size mentioned; situated around a central cavity with their apertures *inward*; the whole supported by statoblast spicules of various sizes, which, intercrossing each other, form a net-like globular capsule, in which the outer parts of the statoblast are fixed and covered; apparently (for the specimen is dry) deficient at one point, which leads to the central cavity. Statoblast spicules acerate, sharp-pointed, like the skeletal spicules, but becoming much shorter and more coarsely spined as they approach the chitinous coats of the statoblasts, where they may be reduced to at least 27-6000ths inch in length, although often increased to 4-6000ths inch in thickness, and their spines, which are very irregular in size and situation, often as long as the spicule is broad."

The words in brackets are mine. Mr. Carter goes on, however, to notice the remarkable fact that this spongilla has flesh spicules identical with those of *M. everetti*; and suggests that possibly they may not belong to *S. mackayi*, but that their presence may be owing to the proximity of *M. everetti*, which grows in the same lake. My subsequent observations go to prove that Mr. Carter's surmise is correct, and that the flesh-spicules in the specimen are adventitious. When in St. John's, Newfoundland, this summer, I was conducted by the well-known historian and scientific observer, Rev. Moses Harvey, to Virginia Lake, a beautiful sheet of water, a few miles from the city, in which the development of *Spongilla mackayi* is very luxuriant on the stones, etc., in depths of from two to four feet of water. I have not observed these flesh-spicules in the specimens from Newfoundland or in other specimens from Nova Scotia.

The second new species was described by Mr. Edward Potts before the Philadelphia Academy of Natural Sciences, at its meeting of Feb. 24th, 1885, as follows:—

"*Heteromeyenia pictovensis*, n. sp.—Sponge light green, even when dry, massive, encrusting; texture very compact; spicules non-fasciculated, persistent; surface mostly smooth.—Gemmules very scarce, spherical crust thick.—Skeleton spicules cylindrical, short, robust, rounded, or abruptly terminated; entirely spined, spines conical at the centre of the spicule, elsewhere generally curving *forward*, or towards each extremity. Rounded terminations of spicules covered with short spines, though frequently a single large spine or acute termination is seen at one or both extremities.—



HETEROMEYENIA PICTOVENSIS.

- A.—Skeleton spicule.
- B.—Long statoblast spicule.
- C.—Short statoblast spicule.

Dermal spicules absent or undiscovered.—Birotulates of the longer class surrounding the gemmules, rather numerous, one half longer than the others; shafts conspicuously fusiform or largest at the centre, where are frequently found one or more long spines; their rotules consist of three to six irregularly placed rays, recurved at the extremities.—Birotulates of the shorter class abundant and compactly placed around the gemmule; shafts mostly smooth, though sometimes bearing a single spine; irregularly cylindrical, but rapidly widening to support the rotules, which are

large, umbonate, nearly flat, and finely lacinulate at their margins; occasionally bearing spines. — *Measurements.* Skeleton spicules 0·0075 inch long, by 0·00075 inch thick; length of long birotulates 0·0021 inch; of short birotulates 0·0012; diameter of disc of latter 0·0009 inch."

This is one of the most beautiful of our fresh-water sponges. It is so much more compact and firm than our other sponges, that it can nearly infallibly be recognized at sight or by touch when once seen and handled. Its range in Nova Scotia is quite extensive: it has been found on the Atlantic and Gulf slopes. It is also abundant in Newfoundland. *S. mackayi* is also easily recognized without microscopic examination when once seen. Its encrusting habit, with the conspicuously large compound statoblasts, is very characteristic. Its nearest congener is the variety of *Spongilla fragilis* (Leidy) described by Dr. Geo. M. Dawson as *S. ottawaensis*.

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